UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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ART UNIT	PAPER NUMBER
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DATE MAILED: 04/20/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 January 2004*.

2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
   closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *39-106* is/are pending in the application.

   4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *39-106* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

   Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

   Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   a)☐ All   b)☐ Some * c)☐ None of:

   1.☐ Certified copies of the priority documents have been received.

   2.☐ Certified copies of the priority documents have been received in Application No. _____.

   3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
      application from the International Bureau (PCT Rule 17.2(a)).

   * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)
2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
      Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
      Paper No(s)/Mail Date. _____.
5)☐ Notice of Informal Patent Application (PTO-152)
6)☐ Other: _____.

DETAILED ACTION

1.   This action is in response to the communication filed on 01/20/04.

Claims 7, 20-38 are canceled. Claims 39-106 are newly added.

Claims 39-106 are pending in the application.

The specification is amended, where in the Specification, pages 15-165 are deleted and replaced

by the new submitted Appendix 1. New paragraphs (in the amendment: pages 3-7) are added to the

Specification at the paragraph ending on line 22 in page14.

Response to Arguments

2.   Applicants arguments that Cowlishaw, Michel, and Henricson are silent on object oriented

operating system (Re: Remarks: pages 19, third paragraph):

Examiner disagrees: Cowlishaw and Michel, discloses REXX objects, where REXX is known as

an operating system language (re Cowlishaw: Page 2, "Tailoring user commands", referring to "REXX

programs for tailoring operating systems...", and because it has a set of built-in classes operating for

string manipulation (re: Michel, page 3, see section Using built-in classes). Michel further pushes REXX

toward objects in the object-oriented manner. Furthermore, Henricson discloses defined string classes

for memory handling. Thus, the combination of Cowlishaw, Michel, and Henricson (as set forth in

previous office action) indeed addresses the teaching of an object-oriented operating system.

Claims 39-106 are newly added that necessitate a new ground of rejection. Accordingly, **THIS**

ACTION IS MADE FINAL. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy

as set forth in 37 CFR 1.136(a).

Further Applicants' arguments given in their Remarks in the rejection of Claims 7, 20-38 under 35

USC 103(a) (re: Remarks: pages 18-19) which primarily argue for an object-oriented operating system

have been fully considered but these arguments are not persuasive as noted above.

Claim Rejections - 35 USC § 112

3.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant _regards_ as his invention.

4.   Claims 40-46, 87 and 98 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

As per Claim 40:

Claim 40 that recites limitation "*wherein at least one of the plurality of operating system*" is indefinite because "*the plurality of operating system*" is contradictable to the scope set forth by its preamble "An object oriented operating system". It requires amending this limitation in accordance to the scope set forth by the preamble and/or for clarifying the means of "*one of the plurality of operating system*"

As per Claims 41-46: Claims 41-46 which have the limitations depending on the indefinite Claim 40 are indefinite.

As per Claims 87, 98:

Claims 87 and 98 which have the improper dependency are indefinite. Claims are depend on two different claims. It requires amending the claims into proper dependency.

Claim Rejections - 35 USC § 103

5.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

A person shall be entitled to a patent unless –

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6.   Claims 39-106 are rejected under 35 U.S.C. 103(a) as being unpatentable over Henricson et al.,

"Programming in C++ Rules and Recommendations", in view of Cowlishaw, "The REXX Language A

practical Approach to Programming" and Michel, "Getting Started with Object REXX".

As per claim 40: Regarding,

        "*An object oriented operating system programmed using an object oriented programming*

language which defines a class (Examiner note: "defines a class": generic definition of a class in object

oriented language like C++), *the object oriented operating system comprising a plurality of class defined*

by the operating system (re: Henricson, see page 16(88) "PackableString.cc", which is defined for

handling strings) *to replace the class defined by the object oriented programming language, wherein at*

least one of the plurality of operating system defined classes utilizes different memory management

functionality than the class defined by the object oriented programming language (re: Henricson, it shows

classes in string class are used by other defined classes such as "Class buffer", page 31(88), in handing

strings in a buffer)".

        Henricson, does not expressly show that the defined String class (re: Henricson, see page

16(88)) as used in an object oriented operating system.

        However, Cowlishaw develops REXX language, and Michel develops Object-Oriented Language

REXX (re: Michel, "Object REXX") using the REXX built-in functions for manipulating Strings toward (re:

Cowlishaw: Page 2, Tailoring user Commands, "REXX programs for tailoring operating systems have

been written...", and pages 139-141, section 12) operating system (This interpretation is in light of the

Specification, since string manipulation is used in operating purposes).

        Therefore, it would have been obvious to a person of ordinary skill in the art at the time of

invention was made to combine the concept of object operating programming REXX (Michel, and

Cowlishaw) with the String Class in C++ language of Henricson for operating system purposes. Doing so

would take advantage of object-oriented concept toward the memory management which requires doing

string manipulation for reducing code and storage.

As per Claims 39: Claim 39 recites the limitation which has claimed functionality corresponding to the limitation recited in Claim 40. Therefore, Claim 39 is rejected in the same reason set forth in connecting to the rejection of Claim 40.

As per Claims 41: Henricson discloses three classes, Class String (page 21(88)), Class Buffer (pages 31(88)); and classes that handle memory allocation and heap management (such as pointers) (pages 70(88) and 71(88)).

As per Claims 42: Henricson discloses the limitation of Claim 42 in using pointers (re: Henricson: see section "Pointers and References", page 54(88)).

As per Claim 43: Henricson further discloses the limitation of Claim 43 based on a limited size of a buffer (re: Henricson: see example 24, page 31(88), "Char buffer [csize]").

As per Claim 44: Henricson further discloses the limitation of Claim 44 using PackableString.cc in handling Memory Allocation (re: Henricson: see section 16, page 70(88)).

As per Claim 45: Henricson further discloses the limitation of Claim 45 with string function such strcpy or strleng (re: Henricson: page 34(88)).

As per Claim 46: Henricson further discloses the limitation of Claim 46 because polymorphism is a property of object oriented.

As per Claim 47: The limitations of Claims 40, 42, 43, and 44 combine the limitation of Claim 47. Claim 47 is rejected in the same reasons set forth in connecting to the rejections of Claims 40, 42, 43, and 44.

As per Claim 48: Henricson discloses,

"*An object oriented operating system programmed using an object oriented programming language that includes a string class is redefined as a set of string descriptor classes* (re: Henricson, see page 16(88) "PackableString.cc", which is defined for handling strings); *and wherein at least one of the description classes within the set of string descriptor classes utilizes different memory management functionality* (re: Henricson, it shows classes in string class are used by other defined classes such as "Class buffer", page 31(88), in handing strings in a buffer)".

Henricson, does not expressly show that the defined String class (re: Henricson, see page 16(88)) as used in an object oriented operating system.

However, Cowlishaw develops REXX language, and Michel develops, Object Oriented Language REXX (re: Michel, "Object REXX") using the REXX built-in functions (se: Cowlishaw: pages 139-141, section 12) performed in an operating system (This interpretation is in light of the Specification, since string manipulation is used in operating purposes).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of invention was made to combine the concept of object operating programming REXX (Michel, and Cowlishaw) with the String Class in C++ language of Henricson for operating system purposes. Doing so would take advantage of object-oriented concept toward the memory management which requires doing string manipulation for reducing code and storage.

<u>As per Claim 49</u>: Henricson discloses three classes, Class String (page 21(88)), Class Buffer (pages 31(88)); and classes that handle memory allocation and heap management (such as pointers) (pages 70(88) and 71(88)).

<u>As per Claim 50</u>:

Henricson further discloses the limitation of claim 50 (re: Henricson: see section 16, page 70(88)) by using memory allocation.

<u>As per Claim 51</u>:

Henricson further discloses the limitation of claim 50 (re: Henricson: see section 16, page 70(88)) by a new value to a pointer.

<u>As per Claim 52</u>:

Henricson further discloses the limitation of claim 52 (re: Henricson: see section 16, page 71, "heap memory").

<u>As per Claim 53</u>: Henricson further discloses the limitation of claim 53 (re: Henricson: see example 25, Class string, page 33).

<u>As per Claim 54</u>: Henricson further discloses the limitation of claim 54 (all string relate classes).

<u>As per Claim 55</u>: Henricson further discloses the limitation of claim 55 (re: Henricson: see page 70, lines 6-7 "allocated statically").

As per Claim 56: Henricson further discloses the limitation of claim 56 because the string class included with pointer (re: Henricson: see page 70, "rec. 59").

As per Claim 57: Henricson further discloses the limitation of claim 57 (re: Henricson: see whole section memory allocation pages 70-71, referring to heap memory).

As per Claim 58: Henricson further discloses the limitation of claim 58 using the string function such strcpy or strleng (re: Henricson: page 34).

As per Claim 59: Henricson further discloses the limitation of claim 59 (re: Henricson: see memory allocation page 70, referring to heap memory).

As per Claim 60: Henricson further discloses the limitation of claim 60 using the strcpy function and since the object can be copied (re: Henricson: page 34, where strcpy is used to copy text string (flat structure)).

As per Claim 61: Henricson further discloses the limitation of claim 61 because "polymorphic" is inherent in object oriented.

As per Claim 62: Henricson further discloses the limitation of claim 62 because the string class is included with virtual pointer and "polymorphic" is common property of object oriented.

As per Claim 63: Henricson further discloses the limitation of claim 63 because Sharing field and data is a common property of a programming language. A declaration in programming language does this.

As per Claim 64: Henricson further discloses the limitation of claim 64 because the claim is inherent in object oriented programming like C++, where C++ is included with statements to declare the length of a string.

As per Claim 65: Henricson further discloses the limitation of claim 64 because the claim is inherent in object oriented programming like C++, where C++ is included with statements to declare the length of a string.

As per Claims 66-67:

Claims 66-67 are inherent in a data structure that defines fields for conforming to polymorphism of objects.

As per Claims 68-71, 73:

The claims recite the limitations in such manners as it recites in Claim 40. The claims are rejected in the same reason as set forth in connecting to the rejection of Claim 40.

As per claim 72: Claim 72 is dependent on Claim 71, further recites: "The method of Claim 71, where the first class is a string class" (Henricson discloses Class String (page 21(88)),

As per claim 74: Claim 74 is dependent on Claim 71, further recites: "The method of Claim 73, where the first class is a string class" (Henricson discloses Class String (page 21(88)),

As per claim 75: Henricson discloses,

"*A computing device programmed to manipulate or access objects of the string class using an object oriented system, wherein the objects of the string class are derived from a single base class* (re: Henricson, see page 16(88) "PackableString.cc", which is defined for handling strings) *and the operating system handles all such objects of the string class according to one or more of the following requirements*:

(a) objects of the string class for literal text are handled as belonging to a class in which a pointer points to the memory location where the text string is store (re: Henricson, instruction C++ that defines a class having pointer types (page 54(88)) used in class string such as class string, page 33(88) or page 34(88));

(b) objects of the string class for length limited text are handled as belonging to a class in which a buffer stores text of a predetermined length requiring a limited subset of available memory management functions (re: Henricson, see example 24, page 31(88));

(b) objects of the string class using heap memory are handled as belonging to a class requiring the full set of available memory management functions (re: Henricson, see section 16, page 70(88)).

Henricson, does not expressly show that the defined String class (re: Henricson, see page 16(88)) as used in an object oriented operating system.

However, Cowlishaw develops REXX language, and Michel develops, Object Oriented Language REXX (re: Michel, "Object REXX") using the REXX built-in functions (se: Cowlishaw: pages 139-141, section 12) performed in an operating system (This interpretation is in light of the Specification, since string manipulation is used in operating purposes).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of

invention was made to combine the concept of object operating programming REXX (Michel, and

Cowlishaw) with the String Class in C++ language of Henricson for operating system purposes. Doing so

would take advantage of object-oriented concept toward the memory management which requires doing

string manipulation for reducing code and storage.

As per Claim 76: Henricson discloses the limitation of claim 76 because of depending on the subclass or

methods used in an object.

As per Claim 77: Henricson further discloses the limitation of claim 77 using the strcpy function and since

the object can be copied (re: Henricson: page 34, where strcpy is used to copy text string (flat structure)).

As per Claim 78: Henricson further discloses the limitation of claim 78 (inherent in the instruction Buffer).

As per Claims 79-80: Henricson further discloses the limitations because polymorphism is inherent in

object oriented.

As per Claims 81-83: Claims 81-83 are inherent in a data structure that defines fields for conforming to

polymorphism of objects.

As per Claim 84: Henricson further discloses the limitation of Claim 84 because String instructions such

as string(), length(), etc, do not require 0 terminator.

As per Claims 85-86; 96-97: Claims 85-86 and 96-97 recite the limitations which have claimed

functionality corresponding to the limitation recited in Claim 75. Therefore, Claims 85-86 and 96-97 are

rejected in the same reason set forth in connecting to the rejection of Claim 75.

As per Claims 87-95, 98-106: Claims 87-95 and 98-106 recite the limitations which have claimed

functionality corresponding to the limitation recited in Claims 76-84 respectively. Therefore, Claims 87-95

and 98-106 are rejected in the same reason set forth in connecting to the rejections of Claims 76-84.

Conclusion

7.   Applicant's amendment necessitated the new ground(s) of rejection presented in this Office

action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of

the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from

the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date

of this final action and the advisory action is not mailed until after the end of the THREE-MONTH

shortened statutory period, then the shortened statutory period will expire on the date the advisory action

is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX
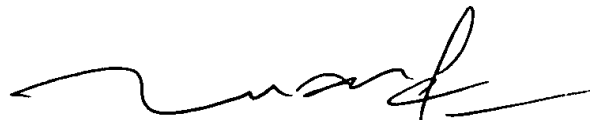
MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should

be directed to Ted T. Vo whose telephone number is (703) 308-9049. The examiner can normally be

reached on Monday-Friday from 8:00 AM to 5:30 PM ET. If attempts to reach the examiner by telephone

are unsuccessful, the examiner's supervisor, Tuan Dam, can be reached on (703) 305-4552.

The fax phone numbers:

(703) 872-9306 (for formal communication intended for entry);

(703) 746-5429 (for informal or draft communication, please label "PROPOSED" or "DRAFT").

Any inquiry of a general nature or relating to the status of this application or proceeding should be

directed to the Group receptionist whose telephone number is (703) 305-3900.

TUAN DAM
SUPERVISORY PATENT EXAMINER

TTV
April 16, 2004